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ABSTRACT

This study developed and estimated a conceptual model of student retention incorporating approach/avoidance behavioral theory with 262 first and second year students at a major midwestern research university. The study applied a theoretical model focusing on the influence of coping behavior on academic and social integration, student intentions, and departure. The model also evaluates the influence of approach/avoidance as a theoretical construct as well as the influence of particular approach/avoidance factors on academic and social integration. Analysis of the study questionnaire data indicated that: (1) the assumption that psychological theories can be used to enhance understanding of the retention process was supported, (2) psychological and sociological factors accounted for 37.7 percent of the variance in student retention, and (3) institutions can enhance student retention by developing programs that increase appropriate academic and social approach behaviors and reduce avoidance behaviors. An appendix contains a descriptions of the scales used in the study. (Contains 41 references.) (GLR)

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An Approach/Avoidance Behavioral Model of College Student Retention

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This paper was presented at the annual meeting of the Association for the Study of Higher Education held at the Pittsburgh Hilton and Towers, Pittsburgh, Pennsylvania, November 4-7, 1993. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

ABSTRACT

A conceptual model of student retention based on approach/avoidance behavioral theory was developed and estimated using 262 first and second year students at a major midwestern research university. Findings indicated that 1) the assumption that psychological theories could be used to enhance understanding of the retention process seems well founded; 2) psychological and sociological factors accounted for 37.2% of the variance in student retention; 3) institutions can enhance student retention by developing programs that increase appropriate academic and social approach behaviors and reduce avoidance behaviors.

An Approach/Avoidance Behavioral Model of College Student Retention

Introduction

Research efforts have confirmed that students stay in college when they feel integrated into the academic and social communities of the institution (Pascarella & Chapman, 1983; Pascarella & Terenzini, 1983; Terenzini & Pascarella, 1980). In addition, Bean (1990) found that student intentions to persist in college are good predictors of student retention. This observation suggests a relationship between attitudes and the intentions and behaviors that reflect them. If this is the case, there are behavioral indicators that signal when a student's commitment to college may be wavering.

Research on retention has been based primarily on sociological principles and theory, and focussed on groups rather than individuals. As a result, we know a great deal about the general factors that contribute to the drop-out decision. We also know that some groups of students, such as educationally disadvantaged students and certain minority groups, are more likely to adapt poorly to the college environment than are others. What we do not know is what inherent characteristics of individuals within such a group increase their likelihood of remaining in school until graduation.

Related Theory

Tinto (1975) developed a model of student retention that remains the basis of a large number of sociologically based

studies. Tinto believed that a student's persistence was related to the degree to which a student was integrated into the college's social and academic communities. Social interaction with faculty and peers contributed to an individual's social integration, while grade performance and intellectual development lead to academic integration. Successful integration leads to further commitment to the institution and to academic goals, thus contributing to a student's persistence. Terenzini and Pascarella (1980) and Pascarella and Terenzini (1983) did a series of studies which supported Tinto's theoretical premises regarding the predictive capacity of integration in predicting persistence.

Bean (1983) developed a model of college student attrition which examined behavioral and attitudinal measures which were assumed to be associated with satisfaction with the institution. In this model, Bean introduced the concept of intent into persistence model research. Intent came from the psychological theories of Ajzen and Fishbein (1972, 1977) and were further developed by Bentler and Speckart (1979, 1981). These theorists contend that there is a strong relationship between attitudes, intentions and behavior. In Bean's model, intention to leave the institution was found to be a highly predictive attitudinal factor associated with a student's decision to leave the institution.

Bean's most recent model (1990), depicts background characteristics as contributing to academic and social

integration as well as environmental pull, a measure of external factors which can draw an individual away from college, such as finances or family responsibilities. In that model, academic and social integration influence attitudes, as do characteristics of the institution. In turn, attitudes influence institutional fit and commitment.

What is missing from most Tinto-based research, however, is an examination of other theoretical sources for consideration within attrition model research. Pascarella and Terenzini (1991) state that many student characteristics which contribute to the persistence decision have been overlooked within the current framework. Weidman (1989) found that sociologically based persistence research places emphasis on the general socialization process in college rather than on the attributes of the individual undergoing socialization.

Behavioral psychology offers a perspective of individual adaptation lacking in traditional persistence models. Coping behavioral theory, for example, provides applications to current persistence models. Self-assessment of environmental contributions and adaptation are an important part of adjustment in a life situation. Adjustment can be looked at as the process by which an individual establishes a "goodness of fit" with the environment (French, Rodgers & Cobb, 1974, p. 316). Adaptation can be defined as the means by which an individual learns to cope with a particular situation (Lazarus, Averill & Opton, 1974).

Coping can be referred to as perhaps the broadest form of

adaptive behavior. For the purposes of this study, coping is viewed as a defensive means for dealing with life challenges. Lazarus (1966) states that coping is a process by which an individual can either improve an existing situation or defuse a potentially dangerous one.

In either case, the individual is attempting to deal with a situation which causes stress. Stress can be defined as the emotional and physiological response to a change in the environment which an individual perceives as threatening (Appley and Trumbull, 1986).

Many categorizations have been made to define coping behavior, but one of the most pervasive definitions in recent literature is the concept of approach/avoidance (Roth & Cohen, 1986). Approach behaviors are those practices in which an individual engages to take action against the stress producer. Avoidance behaviors are those practices which the individual uses to divert attention away from the stressor. In both cases, the individual is taking some action (or non-action) as a means of reducing the stress created in a given situation.

Some perceive the constructs of approach and avoidance as dichotomous with repression or withdrawal from activity at one end, and engagement in activity at the other. Lazarus, Averill and Opton (1974) make a distinction between these behaviors, however, stating that aggressive, positive, approach behaviors draw from different motivational forces than do avoidant, passive or withdrawal based behaviors. Individuals are not exclusively

approachers or avoiders. In fact, in most situations, an individual may alternate between both types of behavior, depending on how he/she interprets the situation over time (Krohne, 1989).

An individual's choice of coping action in a stressful situation is dependent on the personal repertoire of coping behaviors he/she has acquired from similar experiences in the past (Bronfenbrenner, 1986?). Since coping is used to adapt to stressful situations, it can be used to examine the process of adaptation and adjustment to the college environment.

Adaptation to college is a stressful activity to say the least. It requires strategies for adjustment as well as a supportive environment in which adjustment can occur (Kaplan, 1980). Both Bean and Tinto identify measures of adaptation, such as academic and social integration, as having an important influence on the decision to leave school. Social and academic integration can be considered to be primary indicators of adjustment to the college environment.

Bentler and Speckart (1981) suggested that behaviors and attitudes demonstrate a cyclical relationship in which attitudes guide behaviors which result in an outcome that must be interpreted by the individual. Re-interpretation of the environment based on this new information allows the individual to modify an attitude thus motivating new behavior, etc. (Bem, 1972).

Coping can be viewed in this study as the behavioral means

by which an individual adapts to the academic and social rigors of college. Coping choices should be highly associated with the individual's perception of his/her adaptation and adjustment to the college's social and academic environments. Adaptation, as measured by social and academic integration then, should be a reflection of a student's intention to stay or leave the institution as well as the student's actual persistence or departure.

The Model

For this study, a model was developed (figure 1), consistent with prevailing theoretical assumptions with regard to student retention (Cabrera, Castenada, Nora & Hengstler, 1992) using theoretical bases as provided by Tinto (1975) and Bean (1990) and incorporating approach/avoidance theory.

In the theoretical model, there are nine constructs under consideration. These include Attrition, Intent to Leave, Social Integration, Academic Integration 1-Satisfaction and Academic Integration 2-Future Perception, Social Approach, Social Avoidance, Academic Approach and Academic Avoidance.

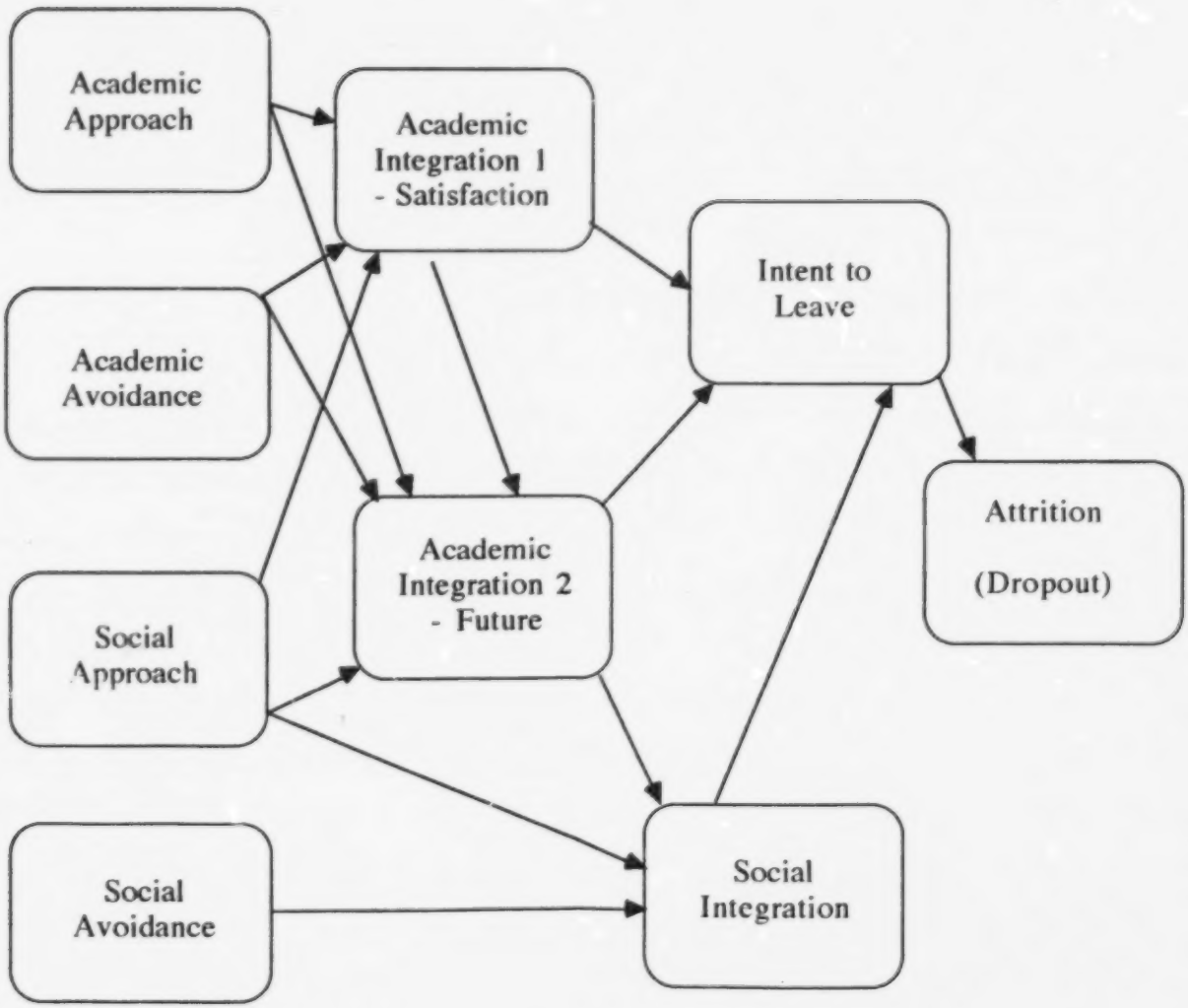
Attrition

Attrition represents the predicted outcome, in this case, the behavioral measure of physical departure from the university.

Intent to Leave

Intent to Leave is an attitudinal construct. In this study, it is a representation of the individual's attitude with respect to departure from the university. In the model, it is the

Figure 1 - Approach/Avoidance Mechanisms in Student Retention



single, attitudinal predictor of attrition. The construct originated in the theoretical work of Ajzen and Fishbein (1972, 1977, 1980) and was introduced to attrition research by Bean (1983, 1985, 1990).

Social and Academic Integration

Social and Academic Integration are constructs derived from the work of Spady (1970) and Tinto (1975). Spady borrowed the term "social integration" from Durkheim's definition (in Spady, 1970) as the development of a sense of compatibility with the social system. Tinto expanded the notion of integration in a college community to include social and academic components. In his theory, social integration still existed as social compatibility with the social community of the university. In addition, academic integration was defined as "the degree of congruency between the intellectual development of the individual and the prevailing intellectual climate of the institution" (Tinto, 1975, p.106).

In addition to the concepts of academic and social integration, Tinto also discussed the concept of commitment to the institution in relationship to these constructs. An individual had an initial level of commitment to personal goals and to the institution which increased or decreased with his/her perceived level of social and academic integration.

In this study, rather than examine the relationship of integration to commitment, the construct of academic integration is divided into short term and long term perspectives. The

element of commitment is inherent in an individual's own perception of his/her integration into the community. Because the rigor of the academic environment increases as an individual advances through his/her degree program, an individual's perception of his/her competency and ultimately integration would reflect differences with respect to time. Academic integration is seen here as both the individual's satisfaction with his/her current academic performance and the individual's perception of the quality of his/her future academic integration.

With respect to the model, as theorized by Bentler and Speckart (1981), attitudinal constructs have a bearing on both intentions and behavior. Therefore, attitudes with respect to integration will have a bearing on both the individual's intentions and his/her actual departure decision.

In examining past theory, it becomes apparent that of the integration variables, social integration has the broadest theoretical definition, stemming from the individual's total integration into the community. Academic integration, rather than being a separate type of integration may actually be a component of the total social integration of the individual. As a result, the path model tested here was conceived so as to reflect the contributions of academic integration on social integration.

Approach/Avoidance Constructs

Any practitioner who works with students has some tacit understanding of the students who will probably perform well and

those who will not. There seem to be behavioral cues provided by students who have adopted attitudes that may be fatal or supportive to their academic success at an institution. The approach/avoidance ideology used in this study helps explore the relationship between the attitudinal constructs discussed above and the student's behavioral reflections of certain attitudes.

Coping theory represents a relationship between an individual's adaptation to a particular life situation and the behavioral means by which such adaptation is accomplished. Adaptation can be considered as similar to the sociological construct of integration. In this study, coping can be viewed as the behavioral means by which an individual becomes integrated to the academic and social environments of college.

Within the theoretical model, social integration is an attitudinal representation of the success of an individual's behavioral choices in adapting to socializing, making friends, and engaging in the social structure of the institution. Academic integration would reflect the degree of success in the use of behaviors to gain academic competence and confidence.

The construct of **academic approach** represents those positive, assertive behaviors and actions used by an individual to enhance success in regard to academic situations, such as courses, tests, studying and relationships with faculty.

The construct of **academic avoidance** represents those behaviors used by the individual to avoid, withdraw from or become passive in academic situations.

The construct of **social approach** represents those positive, assertive behaviors used to move the individual toward success in regard to social situations such as making friends and engaging in formal and informal social offerings of the institution.

The construct of **social avoidance** represents those behaviors used by the individual so as to avoid, withdraw or become passive with respect to the social offerings of this institution.

In examining the effects of these constructs within the theoretical model, it was assumed that academic coping behaviors would contribute exclusively to academic integration. It was further assumed that social coping behaviors would relate to social integration, but that some social approach variables may actually contribute to academic integration.

The Purpose

The purpose of the study was to estimate the theoretical model which examined the influence of coping behavior on academic and social integration, student intentions, and departure. It considered both the influence of approach/avoidance as a theoretical construct as well as the influence of particular approach/avoidance factors on academic and social integration.

Methodology

A questionnaire which measured behavioral and attitudinal constructs in the model was developed to collect data from college students at a large midwestern research university. Questionnaire data was collected in late spring of the 1991-92 school year in first-year mathematics and learning skills courses

which draw primarily first-year students.

The theory underlying the study emphasizes coping behaviors related to the stress encountered while becoming integrated into the institution. Therefore, the target population was comprised of students in the part of their college experience in which they were making the largest adjustments to the social and academic aspects of the institution. Students were preferably in their second semester after matriculation at the institution.

A total of 262 students provided usable surveys for analysis. Participation in the study was voluntary. Actual withdrawal from the university was determined by examination of enrollment records for the Fall of 1992 for survey participants.

The questionnaire was adapted from two existing instruments. Many items were based on Bean's questionnaire for measures of integration and intent (Bean, 1983). Krohne's (1989) instrument which measures coping behaviors was used as a basis for the development of items designed to measure coping behaviors. The style and nature of items used to measure coping then evolved from the type of item suggested for use in instruments by several authors (Krohne, 1989, Miller, 1987, Lazarus, et al, 1974). Items were behavior or attitude related, based on the construct they were measuring. In most cases, the student was asked to report or predict his/her performance in academic or social situations. Students were also asked for reports of their attitudes with regard to academic and social qualities of the institution.

The Variables

Scales were developed for the constructs based on a priori similarities found among survey items which were relevant to the construct. A confirmatory factor analysis was used to verify the assignment of items to particular scales. The discussion below examines each of the scales and variables in the study. Appendix 1 provides more detailed definitions of each of the scales.

Attrition

Attrition was defined as whether or not the student re-enrolled for the Fall semester following the survey. The information was derived from registrar records. The construct does not take into consideration the reasons behind leaving, only whether or not the student left the institution.

Intent to Leave

Intent to Leave was defined as the student's personal prediction of his/her longevity in the institution (after Bean, 1990). Students were asked to report on their likelihood of returning to the institution in the next year.

Social Integration

Building on existing theory, the path model developed preserved the constructs of academic and social integration as theorized from Tinto's (1975) model. Unlike previous research, (for example, Terenzini & Pascarella, 1983; Pascarella, Smart & Ethington, 1986, Terenzini & Wright, 1987), these constructs were operationalized using predominantly attitudinal items rather than a mixture of attitudinal and behavioral items.

The social integration scale included five items related to how well the social atmosphere on campus suits the individual, how much the individual socializes with college friends, how much they enjoy spending weekends on campus, how easy it has been to make friends, and the quality of the friendships made on campus.

Academic Integration

Different from other models, this model includes two operational variables which defined academic integration. The first scale, Academic Integration 1-Satisfaction, focuses on how well grades reflect abilities and how productive the individual feels in class, reflecting on current satisfaction with the academic environment.

The second scale, Academic Integration 2-Future Perception, reflects the student's future adaptation to the academic environment. It includes items which ask how successful the student feels he/she can be, how certain he/she is in their major, and how positive his/her outlook is regarding future courses.

Approach and Avoidance

There were eight scales which measured academic and social coping mechanisms in terms of approach and avoidance behaviors. These included three scales of academic approach behaviors, two measures of academic avoidance behavior, two measures of social approach and one measure of social avoidance.

Academic Approach Scale

Three scales of academic approach behavior were used. These

were formal academic approaches, informal academic approaches, and academic approaches which reflect individual responsibility.

Academic Approach-Informal included two items which included the student's likelihood of asking a question in class for clarification and the likelihood of meeting with a professor if a grade was lower than expected.

Academic Approach-Formal included two items reporting on the frequency of use of help sessions and tutors.

Academic Approach- Individual Responsible Behavior is a measure of the frequency of engagement in responsible academic behavior. The scale include a report of how often the individual turns in assignments on time and a measure of how often an individual voluntarily checks on his/her grades when they are posted.

Academic Avoidance Scales

There are two scales of academic avoidance in the model. These include Academic Avoidance-Courses and Academic Avoidance-Daily Work.

Academic Avoidance-Courses includes four measures which anticipate avoidant behavior toward courses. Items involved the likelihood of dropping a course which was not liked, the likelihood of dropping a course to avoid a low grade, the likelihood of avoiding a difficult course and the likelihood of skipping work in a course if under pressure.

Academic Avoidance-Daily Work measures the avoidance of daily academic activities. Two items compose the scale. One was

a reflection of likelihood of procrastination and the other was a predicted frequency of skipped classes.

Social Approach Scales

The two scales of social approach behavior were Social Approach-Informal and Social Approach-Formal.

Social Approach- Informal included four items regarding the frequency of having parties, frequency of attendance of social functions on campus, frequency of attending informal parties and membership in a greek organization.

Social Approach-Formal included two items which measured the student's level of formal social involvement and leadership on campus. It included a measure of how many non-Greek organizations an individual belonged to as well as the number of offices held in campus organizations.

Social Avoidance Scale

There was one scale designed to measure the extent to which an individual was involved in activities away from campus. There were three items in the scale which included the frequency of weekends away from campus, the number of organizational affiliations away from campus, and the number of hours a week an individual would work in a job off campus.

Background Characteristics

Two scales were created to examine the effects of background characteristics on persistence.

Student Background is a measure of the student's high school grade performance and the number of college preparatory

classes which were taken in high school.

Family Background included measures of mother's and father's educational background, financial support and parental emotional support for the student's decision to attend college.

Data Analysis

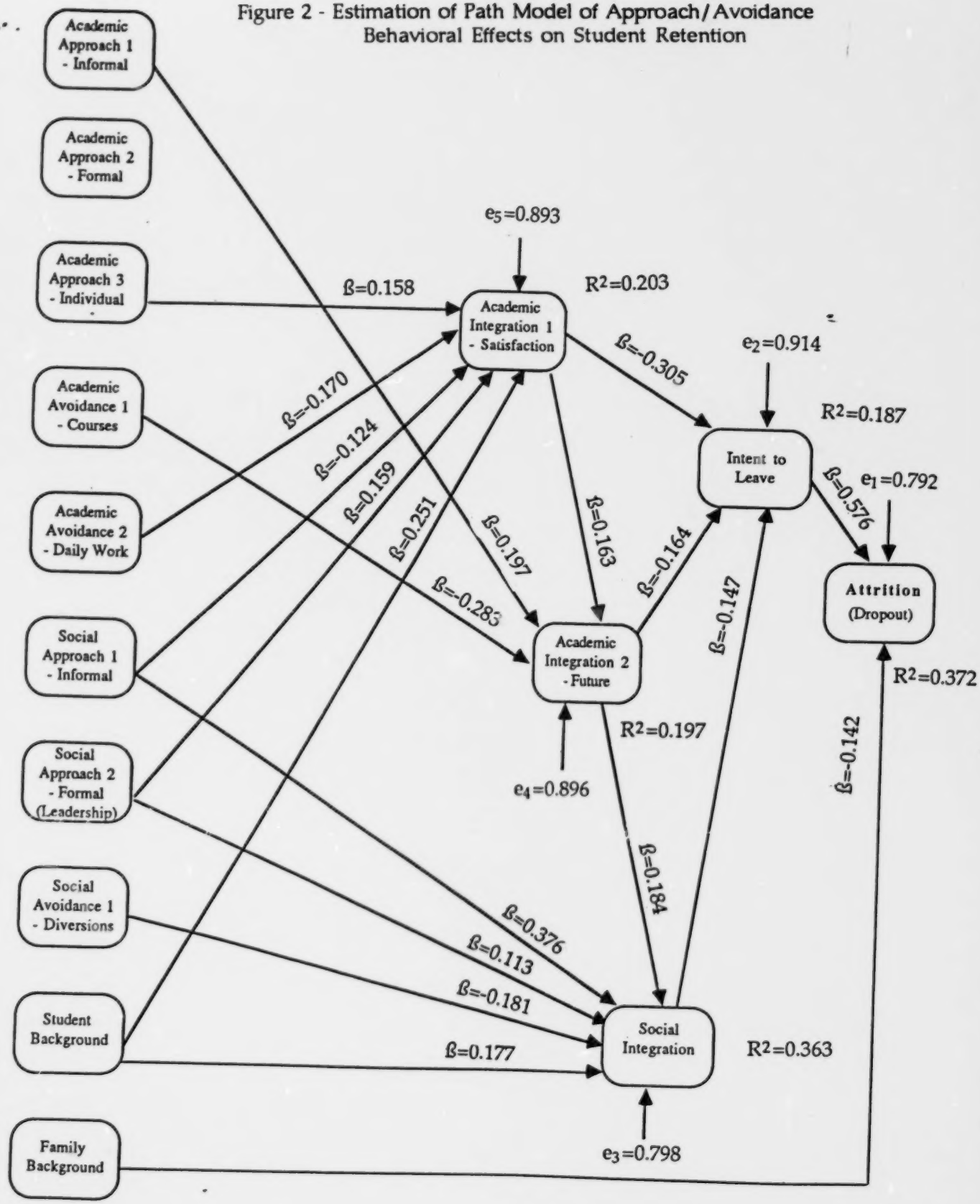
Ordinary least squares multiple regression was used to estimate the parameters of the theoretical model and generalized least squares (LISREL) was used to calculate the significance of indirect effects within the model. The GFI and Chi-Square results were satisfactory for this type of analysis. Logistic regression was used to supplement OLS for the criterion measure. Using backward regressions, significance criterion for retaining a path coefficient was $p < .05$. Analysis was carried out using SPSS computer software.

Results and Discussion

Path analysis determined the regression equations which were based on the theoretical model (table 1). The theoretical model provided five endogenous scales which generated five regression equations to be tested. Ten exogenous scales were considered within regression equations. To test the null hypothesis that none of the variables in the model had an effect on the endogenous scale, all exogenous scales were included in all equations tested.

The results of regressions, including beta-weights, R^2, and errors are located in figure 2. Tables 2 through 6 provide additional information from the results of each regression.

Figure 2 - Estimation of Path Model of Approach/Avoidance Behavioral Effects on Student Retention



Academic Integration 1-Satisfaction as the Dependent Variable

A total of 10 variables accounted for 20.3% of the variance (R^2=.203) in Academic Integration 1-Satisfaction. There are five variables which showed statistically significant paths. There were, in order of magnitude, Student Background (ß =.250), Academic Avoidance-Daily Activities (ß = -.170), Social Approach-Formal (ß =.159), Academic Approach-Individual Responsibility (ß=.158) and Social Approach-Informal (ß=-.124).

Despite expectations based on the theoretical model, only two of the five academic approach/avoidance scales were shown to be associated with Academic Integration 1-Satisfaction. In addition, both of the social approach scales were also shown to be significant in their relationship to a student's satisfaction with academic integration.

The differences between various academic attitudes and behavioral measures now come better into focus. Individuals that take initiatives to be responsible also are demonstrated to be satisfied with their academic performance. Individuals that are routinely avoidant of daily work are not satisfied with their academic progress.

Interestingly, Social Approach-Formal showed a positive relationship to the Academic Integration 1 and Social Approach-Informal showed a negative relationship. This confirms findings by others (Spady, 1971 and O'Shea, 1969) that have

suggested that social involvement contributes in both positive and negative ways to a student's academic performance. Spady (1971) concluded that some students who reflect strong leadership skills also are good academic performers. In addition, this finding offers further support to Pascarella and Terenzini (1991) who speculate that students may be enhancing their academic performance by their social interactions with students who have developed good academic skills.

A negative relationship between informal social approach and academic integration is supported through approach/avoidance theories. In examining social and academic integration, as an individual avoids a stressor (academic work) by engaging in social activity, he/she gains socially. In turn, as the individual becomes more socially involved, it becomes easier to avoid the academic environment.

Rothbaum, Weisz and Snyder (1982) state that avoidant behaviors are generated as an indication that an individual has perceived that a situation has grown beyond his/her control. When an individual cannot bring the environment into line with his/her wishes, he/she may bring him/herself into line with the environment. In the college environment, if the academic environment has been perceived as out of the individual's control, by engaging in informal social interaction, he/she becomes validated as a member of the social community. The individual is also bringing him/herself in line with the social environment. In this case, behavior used as a means of avoiding

one form of adaptation enhances adaptation in another area.

Academic Integration 2-Future Perceptions as Dependent

When Academic Integration 2-Future Perceptions is the dependent variable, there are three significant relationships, and an R^2 of .197. The scales which were significant were, in order of magnitude, Academic Avoidance-Courses (ß=-.283), Academic Approach-Informal (ß=.197), and Academic Integration 1-Satisfaction (ß=.163).

It is interesting to note that not all academic approach/avoidance scales were associated with either of the academic integration measures. Also, the relationships that were statistically significant were discrete for either of the two academic integration measures; some behaviors were associated with one or the other, but none was associated with both. This finding would suggest that academic performance is not necessarily predictable from the same set of variables as an individual's perception of his/her academic future. Olah, Törestad and Magnusson (1989) found that individuals under stress who frequently resorted to avoidant behavior were less likely to adapt to their environmental situation. In this case, individuals that avoid the difficulties of the college situation will be more likely to acquire a relatively bleak perspective of their future academic progress.

The relationship between Academic Approach-Informal and Academic Integration 2-Future Perceptions is similar to one finding of Terenzini, Pascarella and Lorang (1982). In their

study, informal contact with faculty about academic work was associated with academic integration. In addition, Terenzini, Theophlides and Lorang (1984) found that the quality of a student's academic skills is strongly related to that student's contact with faculty and peers regarding academic concerns. In the relationship between Academic Integration 1- Satisfaction and Academic Integration 2-Future Perception, Seiffge-Krenke and Shulman (1990) offer some explanation. In their study, they found that individuals who demonstrate negative attitudes about present circumstances ultimately withdraw emotionally from that situation. In other words, present perceptions tend to shadow future possibilities.

Social Integration

Five variables were significantly related to social integration and accounted for .363 of its variance. The scales included in the statistical model were, in order of magnitude, Social Approach-Informal (ß=.376), Academic Integration 2-Future Perception (ß=.184), Social Avoidance (ß=-.181), Student Background (ß=.177) and Social Approach-Formal (ß=.113). Four of the relationships were positive while only social avoidance was negative.

The negative relationship between Social Avoidance and Social Integration offers support for the premise by Bean and Metzner (1985) which states that external environmental factors which pull the individual away from an institution are strongly related to attrition.

The inclusion of an academic integration measure in the Social Integration path confirms the possibility that social and academic integration are not discrete processes, but are inter-related. This offers support for the finding of Nora, Attinasi and Matonak (1990) that there is a strong correlation between academic and social perceptions of an institution. It also supports Stage's (1989) finding that there were reciprocal effects between social and academic integration variables. Finally, the inclusion of both informal and formal social activities in the path support Tinto's (1975) belief that social integration is comprised of both friendship opportunities and opportunities for formal involvement in the social community.

Intent to Leave as the Dependent Variable

Three variables were significantly related to and accounted for 18.7% of the variance in intent to leave. These were Academic Integration 1-Satisfaction (ß=-.305), Academic Integration 2-Future Perception (ß=-.164), and Social Integration (ß=-.147). As predicted in the theoretical model, the only significant relationships with Intent were integration variables. The behavioral indicators did not contribute significantly to this attitude. The results also support findings in previous studies (Bean, 1983, Cabrera et al, 1991) which have also demonstrated that the significant contributors to Intent were measures of integration, thus supporting the premise that attitudes do in fact reflect intentions.

Attrition as the Dependent Variable

Variables in the model accounted of 37.2 of the variance in student attrition. Two scales were found to have significant relationships with Attrition. These were Intent to Leave (ß=.576) and Family Background (ß=-.142). The relationship between Intent and Attrition was the largest in the model, supporting previous research by Bean (1982) and Cabrera et al (1991). The direct relationship between Family Background and Attrition was not predicted in the theoretical model, but, similar measures have been demonstrated to have indirect effects on Attrition in other studies.

Total Effects

Indirect effects occur when a variable "mediates" the relationship between other variables (Bernstein, Garbin & Teng, 1988, p. 235). Total effects are the calculation of indirect and direct effects of an independent variable on a dependent variable.

Because of the complexity of calculating total effects by hand, computer analysis was required to confirm calculations. Unfortunately, SPSS REGRESSION does not compute any of the necessary figures for total effects calculations. In order to determine significance levels for total effects from SPSS regressions, LISREL was used. SPSS LISREL calculates direct, indirect and total effects for all relationships in the path model as well as F-levels and Standard Errors. The LISREL analysis also provided significance levels for all paths.

LISREL calculations of direct effects were found to be

slightly different from those from the multiple regressions, due to different conventions in calculation. In most cases, this difference was minor. (See Tables 7-11). Of the 18 significant paths calculated from the regression analysis, 14 were also significant in terms of total effects.

Various calculation differences caused the differences between direct effects and total effects models with regard to the other four regression coefficients. The relationship between Social Integration to Intent was not significant in terms of total effects, primarily due to a difference in calculation of direct effects from the use of the LISREL analysis figures. The other three paths came from Approach/Avoidance scales to Academic integration 1-Satisfaction and were deemed insignificant in terms of direct effects in LISREL calculations. All were close to the $p<.05$ level of significance ($p=.07$ to .10).

In addition to these omissions, total effects calculations brought attention to several paths in the model. Three additional paths were significant with regard to Attrition (Academic Integration 1-Satisfaction, Academic Approach-Individual Responsibility and Academic Integration 2-Future Perceptions). Two of these three (Academic Integration 1 and 2) were enhanced by indirect effects through Intent to Leave. The third showed a fairly large but insignificant indirect effect through Intent. From this, it is clear that the contribution of indirect effects through Intent strongly moderated the relationships between the independent variables and

Attrition. Also, Academic Approach 3-Individual Responsibility- was added to the final model due to a strong significant indirect effect through the integration scales.

In the three paths which included Integration scales as dependent variables, all significant paths in total effects had been predicted in the theoretical model and confirmed through regression analysis. In sum, the total effects analysis of the path model indicated that the statistical model was a reasonable representation of the theoretical model. Departures from the theoretical model were statistically the result of fairly large indirect effects through the intervening variable paths. Indirect effects were shown to be greatest in the paths to Attrition when Intent was the intervening variable. Small amounts of insignificant indirect effects also were encountered when the Integration scales were the intervening variables to Intent.

Summary of Major Findings

This study set out to determine the usefulness of behavioral characteristics in the form of approach/avoidance behaviors in their relationship to a student's academic and social integration, intent to leave and attrition from the institution. There are several major findings in the study not confirmed by previous research.

First, the statistical path model suggests that behavioral measures are more significantly related to the study of attrition by their effects on academic and social integration than by a

direct relationship to attrition. In addition, there are components of both academic and social behavior that contribute to an individual's perception of his/her own academic satisfaction suggesting reciprocal relationships between academic and social integration measures or that academic integration is a sub-construct of social integration.

Further, only social behaviors were demonstrated to have a relationship to social integration, whereas academic integration showed relationships to both academic and social factors. This suggests that social integration operates differently than does academic integration, particularly when measured by student-reported and student-interpreted data.

Finally, there were unique relationships found between specific academic approach and avoidance scales and each of the academic integration scales. The discrete nature of each statistical relationship suggests that the concept of academic integration may be far more complex than was depicted in this model or in earlier theoretical models.

Limits of the Study

There are several limits to be considered in assessing the value of this study. First, the sample is not an accurate representation of the target population of all college students at this single institution. Since it was not random it can be assumed that it probably over-represents certain types of students, such as educationally disadvantaged (from the remedial and learning skills courses). The study probably under-

represents students with avoidant behavioral preferences due to their inherently elusive nature (e.g. likelihood of not returning surveys, not attending classes and dropping courses long before the survey was given). The generalziability of the findings is restricted by the nature of the sample.

Second, most data were collected through a survey. Measures of constructs are imperfect. While some of the measures were not new to attrition research, the ways in which they were operationalized was somewhat different. New measures for constructs can and did limit the reliability of the constructs.

Third, the instrument was a forced choice questionnaire. It is probable that bias was introduced by the wording of some items and in the assumptions underlying particular questions. Due to the nature of the questions, respondent bias is also likely.

Data on attrition was gained from certain types of university records. As a result, there was no way to make a distinction between students that dropped out, transferred or were academically dismissed. There may be differences in behaviors of students in each of those groups that could not be considered within the context of this study.

Conclusions

The purpose of this study was to develop and estimate a theoretical model of student retention based on psychological theory. Findings indicated that the approach/avoidance variables had statistically significant effects on academic and social

integration. These variables also produced significant indirect effects on student retention. The results indicated that there is a relationship between social and academic approach and avoidance behaviors and social and academic integration. The study also demonstrated that certain types of approach/avoidance behavior may be more closely associated with some aspects of integration than are others. This would suggest that the processes of academic and social integration may be far more complicated than past studies have suggested. In addition, it would suggest that much more work must be done to fully operationalize broad, abstract constructs such as integration.

Recommendations for Further Research

This study has introduced some ways of looking at the process of student retention that are different from those that have been examined previously. The findings here could be considered a springboard for further research on retention that incorporates psychological perspectives into the sociological models developed in the past.

Operational definitions of broad constructs such as academic and social integration could be improved by making clearer distinctions between attitudes and behaviors that are related to integration that have often been included in measures of a single construct.

This study operates on the assumption that students who leave an institution behave similarly before departure. Since students leave college for a variety of reasons, retention models

should take such distinctions into consideration.

Recent advances in statistical software have enabled researchers to analyze data in more sophisticated ways than was possible even a few years ago. Due to its flexibility and comprehensiveness, LISREL has become an important method of multivariate analysis which should be considered as the primary means of analysis in the estimation of theoretical models.

Finally, retention theorists should consider including principles from developmental psychology into their models. As Tinto (1987) pointed out, individuals encounter different types of integration issues depending on their age and level of personal development. Developmental psychology can offer as much to studies of persistence as behavioral psychology has here and should be considered in future research.

Practical Implications of the Research

Bearing in mind the limitations of the study, the findings indicate that several practices might be considered to increase retention:

1. Courses should be designed in such a way that students can take an active (approach oriented) role in their learning.

2. While social programs should be promoted, staff and faculty should encourage student to balance their social and academic lives. Student should monitor their social successes and not use these as a hedge against academic failures.

3. Students should be encouraged to engage in formal social activities (e.g. student organizations) which seem to have a

positive effect on academic integration.

4. It is possible that tutoring and other forms of academic support that have inherent in them a high level of risk to the student may fail because the students that require such supports are predominantly avoidant in their academic behavioral choices. Such programs should be designed with low levels of risk so as to encourage students to become more approach oriented.

5. Coping skills have been demonstrated by research to be teachable. Retention programs should provide opportunities for students to build new and more successful academic and social coping skills.

6. Retention programs should monitor students and be proactive and intrusive, that is, they must reach students with high levels of avoidant behavior. Designers of such programs should be most sensitive to the behaviors of the invisible studeunt, the one who speaks softest or not at all.

Tables

Table 1
Regression Equations

$$Y1 = g11\,(X1) + g12\,(X2) + g13\,(X3) + g14\,(X4) + g15\,(X5) + \text{error}$$

$$Y2 = b21(Y1) + g21(X1) + g22(X2) + g23(X3) + g24(X4) + g25(X5) + \text{error}$$

$$Y3 = b32(Y3) + g31(X1) + g32(X2) + g33(X3) + g34(X4) + g35(X5) + \text{error}$$

$$Y4 = b41(Y1) + b42(Y2) + b43(Y3) + \text{error}$$

$$Y5 = b54(Y4) + \text{error}$$

Where,

Y1 = Academic Integration 1-Satisfaction
Y2 = Academic Integration 2-Future Perception
Y3 = Social Integration
Y4 = Intent to Leave
Y5 = Attrition
X1 = Academic Approach
X2 = Academic Avoidance
X3 = Social Approach
X4 = Social Avoidance
X5 = Background

Table 2: Results of the Regression Equation:
ACADEMIC INTEGRATION 1 as the DEPENDENT Variable
•SATISFACTION WITH CURRENT ACADEMIC PERFORMANCE•

NAME	VARIABLE DESCRIPTION	SIMPLE CORR.	ß-WEIGHT	SIG F	F
ACAP1	Use of informal academic supports	.165	.069	.2407	1.383
ACAP2	Use of formal academic support services	.112	.062	.2924	1.113
ACAP3	Engagement in responsible academic behaviors	.295	.158*	.0106	6.634
ACAV1	Avoidance of courses	-.212	-.035	.5797	.308
ACAV2	Avoidance of daily academic activities	-.254	-.170**	.0071	7.370
SOAP1	Informal involvement in campus soc. activ.	-.132	-.124*	.0426	4.154
SOAP2	Formal Leadership & Social Involvement	.150	.159**	.0057	7.780
SOAV1	Invlvemnt off campus	-.058	-.071	.2244	1.483
FAMILY	Family background & support	.130	.100	.1209	2.422
STUBACK	Prior Academic Preparation	.291	.251***	.0000	17.999

R^2 = .203
Adusted R^2 = .187
Standard Error = .837
F = 12.929 Significance = .0000
Degrees of Freedom = (5, 254) N = 260
* p ≤ .05 *** p ≤ .001

Table 3: Results of the Regression Equation:
ACADEMIC INTEGRATION 2 as the DEPENDENT Variable
•CONFIDENCE IN FUTURE ACADEMIC SUCCESS•

NAME	VARIABLE DESCRIPTION	SIMPLE CORR.	ß-WEIGHT	SIG F	F
ACINT1	Satisfaction w/current academic performance	.271	.163*	.0059	7.712
ACAP1	Use of informal academic supports	.226	.197***	.0007	11.869
ACAP2	Use of formal academic support services	.043	-.031	.5853	.298
ACAP3	Engagement in responsible academic behaviors	.236	.095	.1169	2.475
ACAV1	Avoidance of courses	-.321	-.283***	.0000	24.217
ACAV2	Avoidance of daily academic activities	-.128	.034	.5886	.293
SOAP1	Informal involvement in campus soc. activ.	-.015	.052	.3760	.786
SOAP2	Formal Leadership & Social Involvement	.164	.103	.0705	3.300
SOAV1	Invlvemnt off campus	-.049	-.053	.3526	.867
FAMILY	Family background & support	.077	.047	.4121	.675
STUBACK	Prior Academic Preparation	.194	.058	.3392	.915

R^2 = .197
Adusted R^2 = .184
Standard Error = .682
F = 15.622 Significance = .0000
Degrees of Freedom = (4, 255) N = 260

* p ≤ .05 **p ≤ .01 *** p ≤ .001

Table 4: Results of the Regression Equation:
SOCIAL INTEGRATION as the DEPENDENT Variable

NAME	VARIABLE DESCRIPTION	SIMPLE CORR.	β-WEIGHT	SIG F	F
ACINT2	Confidence in future academic success	.185	.184**	.0011	10.910
ACINT1	Satisfaction w/current academic performance	.054	.012	.8348	.044
ACAP1	Use of informal academic supports	-.048	.097	.0637	3.470
ACAP2	Use of formal academic support services	-.080	-.020	.7033	.145
ACAP3	Engagement in responsible academic behaviors	.032	.017	.7507	.101
ACAV1	Avoidance of courses	.066	.099	.0837	3.016
ACAV2	Avoidance of daily academic activities	.215	.037	.5241	.407
SOAP1	Informal involvement in campus soc. activ.	.487	.376***	.0000	46.699
SOAP2	Formal leadership & social involvement	.222	.113*	.0303	4.748
SOAV1	Involvmnt off campus	-.341	-.181***	.0008	11.633
FAMILY	Family background & support	.338	.092	.1089	2.589
STUBACK	Prior Academic Preparation	.268	.177**	.0012	10.728

R^2 = .363
Adusted R^2 = .345
Standard Error = .675
F = 20.433 Significance = .0000
Degrees of Freedom = (7, 251) N = 259

* p ≤ .05 **p ≤ .01 *** p ≤ .001

Table 5: Results of the Regression Equation:
INTENT TO LEAVE THE INSTITUTION
as the DEPENDENT Variable

NAME	VARIABLE DESCRIPTION	SIMPLE CORR.	ß-WT	SIG F	F
ACINT2	Confidence in future academic success	-.286	-.164*	.0140	6.119
ACINT1	Satisfaction w/current academic performance	-.364	-.303***	.0000	21.578
SOCINT1	Level of social integration or "fit"	-.194	-.147*	.0103	6.687
ACAP1	Use of informal academic supports	-.127	-.053	.5083	.439
ACAP2	Use of formal academic support services	-.095	-.066	.3082	1.043
ACAP3	Engagement in responsible academic behaviors	-.184	-.026	.7168	.132
ACAV1	Avoidance of courses	.111	-.028	.5082	.439
ACAV2	Avoidance of daily academic activities	-.008	-.099	.1018	2.696
SOAP1	Informal involvement in campus soc.activ.	-.102	-.104	.1222	2.405
SOAP2	Formal Leadership & Social Involvement	-.079	.016	.8144	.055
SOAV1	Involvement off campus	.122	.054	.4800	.500
FAMILY	Family background & support	-.115	-.021	.8319	.045
STUBACK	Prior Academic Preparation	-.153	.018	.6670	.186

R^2 = .187
Adusted R^2 = .177
Standard Error = 1.172
F = 16.564 Significance = .0000
Degrees of Freedom = (3, 253) N = 257
* p ≤ .05 **p ≤ .01 *** p ≤ .001

Table 6: Results of the Regression Equation:
ATTRITION as the DEPENDENT Variable
•ACTUAL WITHDRAWAL FROM UNIVERSITY•

NAME	VARIABLE DESCRIPTION	SIMPLE CORR.	ß-WT	SIG F	F
INTENT2	Intent to leave the Institution	.593	.576***	.0000	124.289
ACINT2	Confidence in future academic success	-.123	.048	.3693	.809
ACINT1	Satisfaction w/current academic performance	-.293	-.095	.0792	3.108
SOCINT1	Level of social integration or "fit"	-.208	-.051	.3536	.864
ACAP1	Use of informal academic supports	-.055	.020	.7036	.145
ACAP2	Use of formal academic support services	-.055	-.016	.7610	.093
ACAP3	Engagement in responsible academic behaviors	-.174	-.059	.2564	1.294
ACAV1	Avoidance of courses	.017	-.037	.4748	.512
ACAV2	Avoidance of daily academic activities	-.054	-.027	.6004	.275
SOAP1	Informal involvement in campus soc. activ.	-.079	.049	.3786	.778
SOAP2	Formal Leadership & Social Involvement	-.139	-.069	.1805	1.804
SOAV1	Involvement off campus	.172	.072	.1772	1.832
FAMILY	Family background & support	-.211	-.142**	.0063	7.603
STUBACK	Prior Academic Preparation	-.206	-.085	.1182	2.459

R^2 = .372 Adusted R^2 = .366
Standard Error = .311
F = 70.646 Significance = .0000
Degrees of Freedom = (2, 239) N = 242
*p ≤ .05 **p ≤ .01 *** p ≤ .001

Table 7
Total Effects
ACADEMIC INTEGRATION 1-Satisfaction
as Dependent (Y) Variable

X Variable	Direct Effects (REGRESS)	Direct Effects (LISREL)	Indirect Effects (LISREL)	Total Effects
1.ACAP3	.158*	.228***	.000	.228**
2.STUBACK	.251***	.190**	.000	.190*
3.SOAP1	-.124*	-.122*	.000	-.122
4.ACAV1	-.035	-.120*	.000	-.120
5.ACAV2	-.170*	-.113*	.000	-.113
6.SOAP2	.159*	.087	.000	.087
7.FAMILY	.100	.079	.000	.079
8.ACAP1	.069	.056	.000	.056
9.SOAV1	-.070	-.052	.000	-.052
10.ACAP2	.062	.043	.000	.043

*p≤0.05 **p≤0.01 ***p≤0.001

Note: In order to gain significance information, path coefficients used to calculate total effects came from an SPSS LISREL analysis of the data. Therefore, the path coefficients are slightly different from those obtained in the regressions.

Table 8
Total Effects
ACADEMIC INTEGRATION 2-Future Perception
as Dependent (Y) Variable

X Variable	Direct Effects (REGRESS)	Direct Effects (LISREL)	Indirect Effects (LISREL)	Total Effects
1.ACAV1	-.283***	-.271***	-.016	-.287**
2.ACAP1	.197***	.187**	.007	.195*
3.ACINT1	.163**	.132*	.000	.132*
4.ACAP3	.095	.087	.030	.117
5.SOAP2	.052	.098	.011	.109
6.STUBACK	.058	.037	.025	.062
7.SOAV1	-.053	-.052	-.007	-.059
8.ACAP2	-.031	-.030	.006	-.025
9.SOAP1	.052	.011	-.016	-.005
10.ACAV2	.034	.018	-.016	.003
11.FAMILY	.047	.013	-.010	.003

*p≤0.05 **p≤0.01 ***p≤0.001

Note: In order to gain significance information, path coefficients used to calculate total effects came from an SPSS LISREL analysis of the data. Therefore, the path coefficients are slightly different from those obtained in the regressions.

Table 9
Total Effects
SOCIAL INTEGRATION as Dependent (Y) Variable

X Variable	Direct Effects (REGRESS)	Direct Effects (LISREL)	Indirect Effects (LISREL)	Total Effects
1.SOAP1	.376***	.341***	-.001	.340**
2.SOAV1	-.181***	-.167***	-.010	-.177*
3.ACINT2	.184**	.175**	.000	.175*
4.STUBACK	.177**	.147**	.011	.158*
5.SOAP2	.113*	.111*	.019	.130*
6.FAMILY	.092	.097	.000	.096
7.ACAP1	-.020	-.106	.034*	-.072
8.ACAV2	.037	.041	.000	.042
9.ACAV1	.099	.084	-.050	-.034
10.ACAP3	.017	.011	.020	.031
11.ACINT1	.012	.000	.023	.023
12.ACAP2	-.020	-.002	-.004	-.006

*p≤0.05 **p≤0.01 ***p≤0.001

Note: In order to gain significance information, path coefficients used to calculate total effects came from an SPSS LISREL analysis of the data. Therefore, the path coefficients are slightly different from those obtained in the regressions.

Table 10
Total Effects
INTENT TO LEAVE as Dependent (Y) Variable

X Variable	Direct Effects (REGRESS)	Direct Effects (LISREL)	Indirect Effects (LISREL)	Total Effects
1.ACINT1	-.305***	-.299***	-.024	-.323**
2.ACINT2	-.164*	-.166*	-.016	-.181*
3.ACAP3	-.026	-.062	-.090*	-.152*
4.ACAP1	-.053	-.050	-.043	-.092
5.ACAV2	-.099	-.122	.030	-.092
6.SOCINT1	-.147*	-.091	.000	-.091
7.ACAP2	-.066	-.076	-.008	-.084
8.SOAP1	-.104	-.087	.006	-.080
9.ACAV1	-.028	-.005	-.080*	.076
10.SOAV1	.054	.024	.041	.066
11.STUBACK	.018	.029	-.081*	-.053
12.FAMILY	-.021	.009	-.032	-.023
13.SOAP2	.016	.034	-.056	-.022

*p≤0.05 **p≤0.01 ***p≤0.001

Note: In order to gain significance information, path coefficients used to calculate total effects came from an SPSS LISREL analysis of the data. Therefore, the path coefficients are slightly different from those obtained in the regressions.

Table 11
Total Effects
ATTRITION as Dependent (Y) Variable

X Variable	Direct Effects (REGRESS)	Direct Effects (LISREL)	Indirect Effects (LISREL)	Total Effects
1.INTENT2	.576***	.562***	.000	.562**
2.ACINT1	-.095	.000	.182**	-.182**
3.STUBACK	-.085	-.110	-.030	-.140*
4.ACAP3	-.059	-.048	-.086	-.134*
5.FAMILY	-.142**	-.116*	-.013	-.129
6.ACINT2	.048	.000	-.102*	-.102*
7.SOAV1	.072	.063	.037	.100
8.SOAP2	-.069	-.086	-.012	-.099
9.ACAV2	-.027	-.013	-.052	-.065
10.ACAP2	-.016	-.015	-.047	-.062
11.SOCINT1	-.051	.000	-.051	-.051
12.ACAV1	-.037	-.075	.043	-.033
13.ACAP1	.020	.020	-.052	-.031
14.SOAP1	.049	.076	-.045	.030

*p≤0.05 **p≤0.01 ***p≤0.001

Note: In order to gain significance information, path coefficients used to calculate total effects came from an SPSS LISREL analysis of the data. Therefore, the path coefficients are slightly different from those obtained in the regressions.

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APPENDIX

Appendix 1
Description of Scales

Social Integration

Definition: The social integration scale measures the level of social "fit" or adaptation to the campus social structure.

Five items are included in the scale:
1. The social activities on campus suit me.
2. I prefer socializing with friends here over anywhere else.
3. I enjoy spending weekends on campus.
4. My friends here are among my best friends.
5. It has been easy for me to make friends here.

Academic Integration 1-Current Satisfaction

Definition: The scale measures the level of integration a student feels as assessed by their satisfaction with current academic performance.

Three items are included in the scale:
1. The grades I have received so far reflect my abilities.
2. I accomplish a lot in my classes.
3. Actual Grade Point Average.

Academic Integration 2-Future Perception

Definition: The scale measures academic integration as the level of confidence/clarity that a student has in his/her perception of academic future.

Three items are included in the scale:
1. I am looking forward to my classes next fall.
2. I can be a successful student here.
3. I am certain that I will graduate in my current major.

Social Approach-Informal

Definition: The scale measures the frequency of informal social activity a student engages in on campus.

Four items are included in the scale:
1. How often do you have parties?
2. How often do you attend on-campus or greek dances, parties?
3. How often do you attend informal parties with friends?
4. Are you a member of a fraternity or sorority?

Social Approach-Formal

Definition: The scale measures the level of formal social involvement and leadership on campus.

Two items are included in the scale:
1. How many non-Greek organizations on campus are you involved in.
2. Do you hold an office in any campus organizations?

Social Avoidance

Definition: The scale measures the extent of involvement in activities away from campus.

Three items are included in the scale:
1. How often do you go home for the weekend?
2. How many organizations not affiliated with the college are you involved in?
3. How many hours per week do you work in a job off campus?

Academic Approach-Informal

Definition: The scale measures the frequency of use of informal academic support behaviors.

Two items are included in the scale:
1. I ask questions in class when I need clarification.
2. I meet with a professor when my grade was lower than expected.

Academic Approach-Formal

Definition: The scale measures the frequency of use of formal academic support services.

Two items are included in the scale:
1. How often do you attend help sessions?
2. How often do you use a tutor?

Academic Approach-Individual Responsible Behaviors

Definition: The scale measures the frequency of engagement in responsible academic behaviors.

Two items are included in the scale:
1. I turn in all assignments on time.
2. I check my grades as soon as they are posted.

Academic Avoidance-Courses

Definition: The scale measures the avoidant behavior toward courses.

Four items are included in the scale:
1. I would drop a course to avoid getting a low grade.
2. I would skip an assignment if I were pressed for time.
3. I will avoid taking a course that I know will be difficult for me.
4. I don't do as well in courses I don't like.

Academic Avoidance-Daily Work

Definition: The scale measures the avoidant behavior toward daily academic activities.

Two items are included in the scale:
1. I start assignments as soon as they are assigned.
2. How often do you skip classes?

Intent to Leave

Definition: The scale measures the reported intention of students with regard to their return to the institution.

Two items are included in the scale:
1. How certain are you that you will be enrolled in the Fall?
2. How certain are you that you will be enrolled one year from today?

Attrition

Definition: The scale measures the actual enrollment status of the student in the semester following participation in the survey.

Student Background

Definition: The scale measures the level of high school preparation.

Two items are included in the scale:
1. Student reported high school grade point average.
2. Number of college preparatory courses taken in high school.

Family Background

Definition: This scale provides indicators of family background and support.

Four items are included in the scale:

1. Mother's level of education
2. Father's level of education
3. How supportive have your parents been of your college plans?
4. How certain are you that you will be able to fund your education next year?